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(54) **INHIBITORS OF BRUTON'S TYROSINE KINASE**

(71) Applicant: **Pharmacyclics, Inc.**, Sunnyvale, CA (US)

(72) Inventors: **Lee Honigberg**, San Francisco, CA (US); **Erik Verner**, Belmont, CA (US); **Zhengying Pan**, Austin, TX (US)

(73) Assignee: **PHARMACYCLICS LLC**, Sunnyvale, CA (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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**Related U.S. Application Data**

(63) Continuation of application No. 14/033,344, filed on Sep. 20, 2013, which is a continuation of application No. 13/952,531, filed on Jul. 26, 2013, now Pat. No. 8,759,516, which is a continuation of application No. 13/890,498, filed on May 9, 2013, which is a continuation of application No. 13/849,399, filed on Mar. 22, 2013, now Pat. No. 8,975,266, which is a continuation of application No. 13/654,173, filed on Oct. 17, 2012, now Pat. No. 8,957,079, which is a continuation of application No. 13/542,440, filed on Jul. 5, 2012, now Pat. No. 8,754,091, which is a continuation of application No. 13/479,053, filed on May 23, 2012, now Pat. No. 8,697,711, which is a continuation of application No. 13/472,292, filed on May 15, 2012, now Pat. No. 8,691,546, which is a continuation of application No. 13/450,158, filed on Apr. 18, 2012, now Pat. No. 8,748,439, which is a continuation of application No. 13/361,733, filed on Jan. 30, 2012, now Pat. No. 8,399,470, which is a continuation of application No. 13/340,409, filed on Dec. 29, 2011, now Pat. No. 8,748,438, which is a continuation of application No. 13/335,719, filed on Dec. 22, 2011, now Pat. No. 8,735,404, which is a continuation of application No. 13/328,718, filed on Dec. 16, 2011, now Pat. No. 8,476,284, which is a continuation of application No. 13/312,606, filed on Dec. 6, 2011, now Pat. No. 8,497,277, which is a continuation of application No. 13/249,066, filed on Sep. 29, 2011, now Pat. No. 8,735,403, which is a continuation of application No. 12/356,498, filed on Jan. 20, 2009, now Pat. No. 8,088,781, which is a continuation of application No. 11/617,645, filed on Dec. 28, 2006, now Pat. No. 7,514,444.

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(51) **Int. Cl.**

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(52) **U.S. Cl.**

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(58) **Field of Classification Search**

None

See application file for complete search history.

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*Primary Examiner* — Jeffrey H Murray

(74) *Attorney, Agent, or Firm* — Wilson Sonsini Goodrich & Rosati

(57) **ABSTRACT**

Disclosed herein are pyrazolo[3,4-d]pyrimidines that form covalent bonds with Bruton's tyrosine kinase (Btk). Also described are irreversible inhibitors of Btk. Methods for the preparation of the compounds are disclosed. Also disclosed are pharmaceutical compositions that include the compounds. Methods of using the Btk inhibitors are disclosed, alone or in combination with other therapeutic agents, for the treatment of autoimmune diseases or conditions, heteroimmune diseases or conditions, cancer, including lymphoma, and inflammatory diseases or conditions.

**14 Claims, 8 Drawing Sheets**